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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,471	11/12/2003	Liang A. Xue	H0003450	9413

128 7590 10/25/2006

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EXAMINER	
VORTMAN, ANATOLY	

ART UNIT	PAPER NUMBER
2835	

DATE MAILED: 10/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/712,471	XUE ET AL.	
	Examiner	Art Unit	
	Anatoly Vortman	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,14,17 and 30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,14,17 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 May 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Reply Under 37 CFR 1.111

1. Submission of the Reply filed on 09/20/06 to the non-final Office action of 07/06/06 is hereby acknowledged. Claims 1 and 17 have been amended. Claims 1, 14, 17, and 30, are pending in the instant application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 14, 17, and 30, are rejected under 35 U.S.C. 103(a) as being unpatentable over JP/62-46273 to Ono (of record) taken alone.

Regarding claims 1 and 17, Ono disclosed (Fig. 1 and 2) a passive thermal switch assembly, comprising: a heat pipe (21) having an evaporator end and a condenser end (inherently), two proximate thermally conductive contacts (second contact is at the end of the heat pipe (21), and a first one is at the ends of the moving strips of member (22)), a shape memory alloy (see translated abstract) link (22) coupled to the first thermally conductive contact (see Fig. 2), and adapted to couple to a heat sink (2) (as shown on Fig. 2), wherein the link (22)

moves the first thermally conductive contact to at least partially engage the second thermally conductive contact when at least the link (22) is at a predetermined temperature (see Fig. 2), but did not explicitly pointed out that said link moves the first thermally conductive contact to at least partially engage the second thermally conductive contact when at least the link is above a predetermined temperature, and to disengage the second thermally conductive contact when at least the link is below the predetermined temperature. Ono, however, teaches that the invention may be used for quick heating or cooling of the electronic equipment (see translation). That means that a reverse action of said shape memory link (22) may be employed in order to provide effective cooling, i.e. when said link moves the first thermally conductive contact to at least partially engage the second thermally conductive contact when at least the link is above a predetermined temperature, and to disengage the second thermally conductive contact when at least the link is below the predetermined temperature.

It would have been obvious to one having ordinary skill in the cooling art at the time the invention was made to reverse the action of the shape memory alloy link of Ono, so as to enable said link to move the first thermally conductive contact to at least partially engage the second thermally conductive contact when at least the link is above a predetermined temperature, and to disengage the second thermally conductive contact when at least the link is below the predetermined temperature, in order to provide effective cooling of the electronic equipment, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167.

Regarding claim 17, Ono additionally disclosed a chassis (1), one circuit component (7) mounted within chassis (1), wherein the thermal switch is adjacent to and selectively coupled and decoupled from the chassis (1) (Fig. 2).

Regarding claims 14 and 30, Ono teaches all as apply to claims 1 and 17, respectively, but that the shape memory alloy is selected from the group consisting of nickel-titanium, copper-zinc-aluminum, and iron-manganese-silicon. All of the aforementioned materials have been notoriously **known** to have shape memory properties and have been widely used in the cooling and switch arts at the time the invention was made for making various thermally responsive components. Therefore, it would have been obvious to a person of ordinary skill in the relevant art at the time the invention was made to select any suitable shape memory alloy material for making switch components of Ono, including as claimed, since it has been held to be within the general skill of a worker in the art to select a **known** material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Alternatively, claims 1 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by JP/60-30994 to Fujii et al., (Fujii).

Regarding claims 1 and 17, Fujii disclosed (Fig. 3) a passive thermal switch assembly, comprising: a heat pipe (8) having an evaporator end and a condenser end (inherently), two proximate thermally conductive contacts (9, 10), a shape memory alloy (see translated abstract) link (8) coupled to the first thermally conductive contact, and adapted to couple to a heat sink (2) wherein the link (8) moves the first thermally conductive contact (9) to at least partially engage the second thermally conductive contact (10) when at least the link (8) is above a predetermined temperature, and to disengage the second thermally conductive contact when at least the link (8) is below the predetermined temperature.

Regarding claim 17, Fujii additionally disclosed a chassis with a heat generating circuit component (1) mounted within chassis (inherently), wherein the thermal switch is adjacent to and selectively coupled and decoupled from the chassis (Fig. 2).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Alternatively, claims 14 and 30, are rejected under 35 U.S.C. 103(a) as being unpatentable over JP/60-30994 to Fujii et al., (Fujii) taken alone.

Regarding claims 14 and 30, Fujii teaches all as apply to claims 1 and 17, respectively, but that the shape memory alloy is selected from the group consisting of nickel-titanium, copper-

zinc-aluminum, and iron-manganese-silicon. All of the aforementioned materials have been notoriously **known** to have shape memory properties and have been widely used in the cooling and switch arts at the time the invention was made for making various thermally responsive components. Therefore, it would have been obvious to a person of ordinary skill in the relevant art at the time the invention was made to select any suitable shape memory alloy material for making switch components of Ono, including as claimed, since it has been held to be within the general skill of a worker in the art to select a **known** material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Response to Arguments

8. Applicant's arguments have been considered but are moot, in view of the new grounds of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anatoly Vortman whose telephone number is 571-272-2047. The examiner can normally be reached on Monday-Friday, between 10:00 am and 6:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Lynn Feild can be reached on 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anatoly Vortman
Primary Examiner
~~Art Unit~~ 2835

AV